


Review

Role of Information Systems in Effective Management of Human Resources during the COVID-19 Pandemic

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Abstract: Employees and employers were thrown into uncertainty and chaos during the period of the COVID-19 pandemic, where they had no clear idea of exactly what they should do. Human resource managers operated in crisis mode since the beginning of the pandemic, that is, from 2020 to the first half of 2021. In this period, human resource managers sorted out the possibilities and probabilities on how employees could work from home and formulated strategies for providing them with extra mental and physical care, and they worked harder than ever on corporate-level initiatives to maintain the operations of their companies. The function of Human Resource (HR) has fundamentally changed as businesses have adapted to a new normal and the dust continues to settle. Throughout the pandemic, non-clinical organizations faced uncertain challenges, strategies, and had to make unique decisions regarding human resource management. There have been a variety of detrimental consequences associated with the COVID-19 pandemic, including economic shocks, global health crisis, changes in social behaviors, and challenges for businesses in sustaining their operations. The role of information systems in the management of human resources during the COVID-19 pandemic has been studied in this research. After gathering 400 records from credible publications, duplicates were removed, inclusion and exclusion criteria were used, and 130 papers were finally included in this research. By analyzing the selected papers, it was found in this study that organizations need to be flexible, improve their internal efficiency, acquire talent, and implement innovative changes based on organizational needs in order to ensure smooth business operations. It is possible to improve employees' mental health, satisfaction, productivity, motivation, and workplace health and safety by implementing appropriate human resource management strategies and innovative information systems and IT tools. A conceptual model that establishes relationships between variables is also presented as an outcome of this research.

Keywords: IT tools; HRM during pandemic; HR strategies; functions of HRM; COVID-19 pandemic



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1. Introduction

Organizations around the globe have been disturbed by the COVID-19 pandemic, forcing human resource management (HRM) specialists to adapt and deploy cutting-edge ways of handling the problems brought out by this unprecedented disaster. During the pandemic, HRM was essential for managing the workforce and ensuring that key HR tasks ran smoothly. Human resource managers play a crucial role in hiring [1] managing employee performance and developing effective strategies for supporting employees during the COVID-19 pandemic [2]. They seek innovative and creative solutions to address employees' problems, maintain their health, and establish reliable management strategies [3,4]. Given the exceptional circumstances and changing economic landscape, managing human resources requires deep thinking and flexibility [5].

During the COVID-19 pandemic, many organizations changed their traditional organizational approach and way of communication and adopted IT (information technology)

tools for organizational communications due to restrictions and prohibitions such as working from home, prohibition of social gatherings, prohibition of face-to-face meetings, and much more. IT tools, information systems, and their necessity for the employees were considered prior to the change in working conditions during the pandemic. Tools such as Microsoft Remote Desktop, Zoom, Microsoft Teams (MS teams), and Team Viewer were preferred for communication [6]. These tools played a vital role among HR practitioners, as they could use them to manage, monitor, support, guide, and communicate with employees. HRM strategies such as virtual coffee breaks, virtual socialization, virtual lunch breaks, etc., had significantly impacted the employee performance of the employees [7]. Although some small companies and organizations failed to adapt to digital assistance and the implementation of IT tools and to change their traditional organizational functions due to deficiencies in finances, many organizations were sustained through the incorporation of IT tools into their HR functions. This practice of combining organizational functions with available technological assistance is called an Information System (IS). In this research, the adaptation of Information Systems (ISs) as a process through which HRM practitioners made use of technological tools to communicate and interact with employees during COVID-19 pandemic has been analyzed.

1.1. Research Objectives

The COVID-19 pandemic impacted organizations' functions and operations—mainly HRM practices—between the period 2020 and 2023 (the last three years). Human resource management professionals adopted information systems as a major approach for monitoring and enabling interactions between the upper management and employees, for reviewing performance through virtual appraisals, for conducting meetings, and much more. Thus, in this research, the role of the use of ISs through IT tools in effective HRM during the COVID-19 pandemic will be examined.

1.2. Research Purpose and Rationale

Although there are several studies on the impact of COVID-19 on HRM, studies on the utilization of ISs in assisting in HRM through IT tools have not been carried out by many authors. Thus, to close this gap, the authors of this study have attempted to review the literature on using IT tools in information systems during the COVID-19 pandemic in order to carry out the human resource management functions. The HR strategies adapted in carrying out various HRM functions during the COVID-19 pandemic, such as planning and recruitment, performance evaluation, training and development, compensation and benefits, employee engagement and communication, and employee wellbeing and personal support, have been examined in the literature review. Organizations can learn more about practical methods for controlling their workforce and preserving workers' productivity and well-being in emergency situations by looking at these strategies.

2. Research Methodology

Secondary data were collected in this research from journals indexed by reputed databases, namely, EBSCO (Elton B. Stephens Company, Ipswich, MA, USA), JSTOR (Journal Storage), Google Scholar, Springer, NLM (National Library of Medicine), and many more. Only articles that were relevant to the research problem and written in English were included, whereas any irrelevant articles (those that had similar topics but did not have the same research purpose or objectives) and articles in languages other than English were excluded from this analysis. The quality assessment process involved reviewing the collected papers and determining their eligibility for inclusion in the literature review. The search strategy involved combining important keywords related to HR strategies using Boolean operators (AND, OR) to generate relevant results. The keywords were related to various aspects of HR strategies, including planning and recruitment, training and development, performance appraisal, compensation and benefits, and employee well-

being, thus providing a comprehensive understanding of these topics in organizational settings. Figure 1 presents the process through which articles were screened in this research.

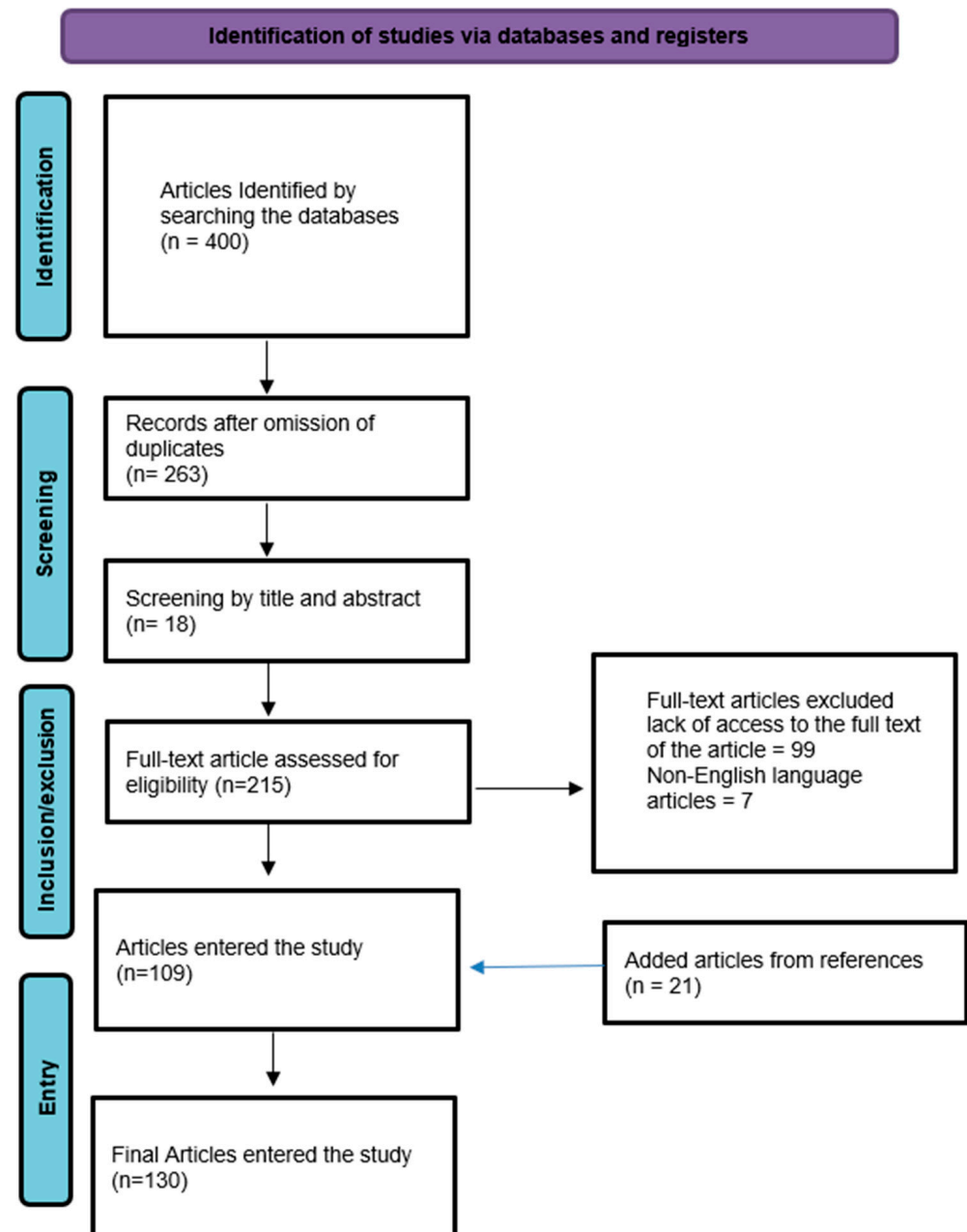


Figure 1. PRISMA research approach. Source: authors.

From Figure 1, it is evident that the number of articles identified through searching the databases in the initial stage was 400. There were 137 duplicates. After elimination of the duplicates, there were 263 articles ($n = 263$), and screening of articles with title and abstract alone ($n = 18$) resulted in 215 articles (i.e., $n = 400 - 263 - 18$). The articles were further reduced to 109 (99 articles were found to be inaccessible and 7 articles were not in the English language). In addition, 21 more articles that were fully accessible and written in the English language were added from the references of the shortlisted articles, producing a total of 130 articles. Therefore, as per the PRISMA (Preferred Items for Systematic-reviews and Meta-Analyses) approach, the number of articles that have been reviewed in this research paper is 130 articles ($n = 130$).

The PRISMA approach-based identification, screening and filtering methods adopted in this research includes five basic characteristics:

- **Eligibility criteria**
- *Inclusion:* By utilizing the Boolean operators ('OR' and 'AND'), only the keywords that are related to the research within HR strategies—namely, planning and recruitment, performance appraisal, training and development, compensation, benefits, personal supports and employee well-being, providing a comprehensive understanding of these topics in organizational settings are used.
- *Exclusion:* Non-English language-based articles, titles and abstract with HRM strategies but without keywords such as information systems, IT tools, COVID-19, and HR practices and without inclusion keywords are omitted and excluded.
- **Information sources**
- *Databases and registers:* EBSCO (Elton B. Stephens Company), JSTOR (Journal Storage), Scopus, Web of Science, Australian Business Dean Council and ABS journal database.
- *Filters and limits:* Publication date: 2019–2021 (during COVID-19); language: English; text: full text (by using the Boolean condition to filter links "FindIt@XYZ"); title: subject area, topic, category and important keywords; access: full accessible texts; language bias: non-English language.
- **Search strategy**
- *Screening and eligibility:* Intervention of HRM practices during COVID-19 and usage of IT tools and Information Systems; comparison other pre-COVID-19 and post COVID-19 materials; article retained if only abstract is available; meta-analysis (PRISMA) by including keyword of "non-English language"-based articles and not relevant to HRM strategies during COVID-19 using IT tools and Information Systems.
- **Bias assessment and study risks**

The types of bias in the systematic review are generally confounding bias, selection bias and information bias. To reduce and minimize the study and bias risks, filters and limitations along with inclusion and exclusion criteria are set, and finally, to analyze the data, independent analysis was used to avoid misinterpretation and miscommunication.

3. Role of Information Technology-Based Tools in Executing Various Functions of Human Resource Management

3.1. HR Strategies Used in Planning and Recruitment during COVID-19 Pandemic

The COVID-19 pandemic has significantly impacted recruitment practices and strategies. To comply with COVID-19 prevention measures, organizations had shifted to online recruitment methods and prioritized national recruitment [8]. Recruiters adapted their methods based on job requirements and individual candidate characteristics, utilizing social networks, online interviews, and psychometric tests [9]. Boomerang hiring, which involved rehiring former employees, emerged as a restructuring method during the pandemic, providing advantages such as cost-effectiveness and customer retention [10]. E-recruitment systems and social media became valuable tools in sourcing candidates, improving the speed and quality of recruitment [11]. A hybrid recruitment and selection system that combined online and offline components was implemented with the entire process conducted online except for necessary in-person tests [12]. E-recruitment through social media was proven effective, attracting a large number of qualified job applicants [13]. Facebook was utilized as an effective recruitment method for reaching a larger pool of candidates [14–16]. Online interviews were facilitated through various platforms, including established applications like Skype and newer platforms like Microsoft Teams and Zoom [17]. Human resources professionals emphasized the importance of fostering a sense of belonging and providing support throughout the recruitment process [18]. Table 1 presents the recruitment strategies adapted along with the corresponding IT tools used for recruitment. Similarly, Figure 2 illustrates the various IT tools used for the recruitment of human resources.

Table 1. Review of studies on recruiting strategies.

Author	Year	Recruitment Strategy Used	IT Tools Used
ILO [8]	2020	Shifting to online methods, prioritizing national recruitment, preparing for safe and fair recruitment practices	Job portals
Green [9]	2020	Adapting recruitment methods based on job requirements, utilizing social networks, online interviews, and psychometric tests	Job portals
Raveendra and Satish [10]	2022	Boomerang hiring (rehiring former employees) for restructuring organizations	Internal intranet
Mallik and Patel [11]	2020	E-recruitment systems and social media in sourcing candidates	LinkedIn, Facebook and Twitter
Amaliyah et al. [12]	2022	Hybrid recruitment and selection system combining online and offline components	Hybrid system
Husna et al. [13]	2021	E-recruitment method through social media	Instagram, Facebook and Twitter
Siddharthan and Palani [14]	2022	E-recruitment, including social media hiring	Job portal like monster.com , nakuri.com , shine.com
Karasik [15]	2022	Door-to-door recruitment during the pandemic	No IT tools were used
Sands [16]	2021	Utilizing Facebook as a recruitment method	Facebook
TalentLyft [17]	2022	E-recruitment, sharing electronic information, and conducting online interviews	Job portal
Jezzini [18]	2022	Fostering a sense of belonging and providing additional value to candidates during the recruitment process	Facebook, LinkedIn

Source: authors.

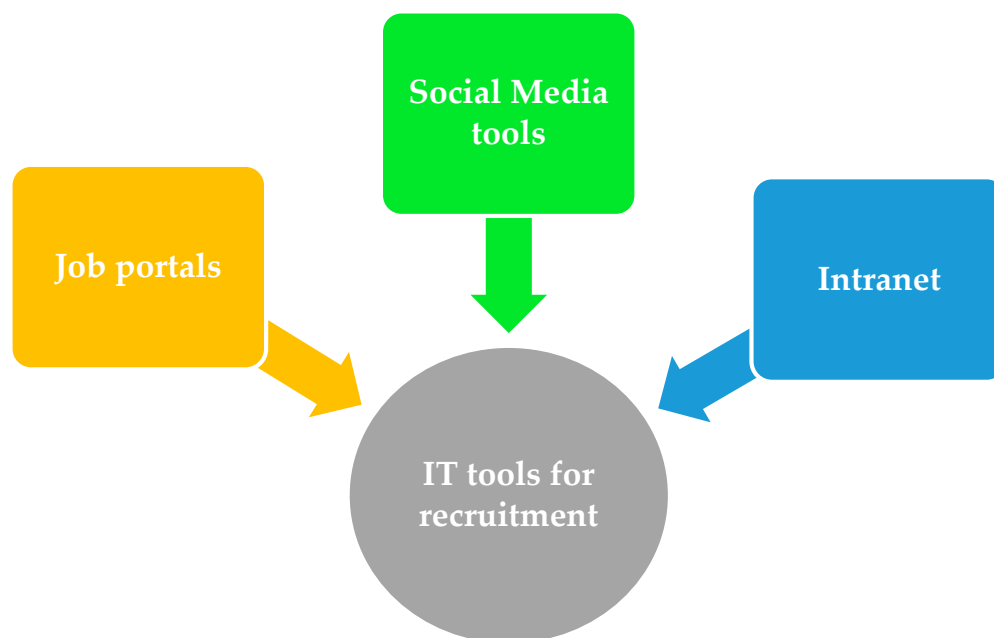


Figure 2. IT tools used for recruitment. Source: authors.

3.2. HR Strategies Used in Performance Appraisal during COVID-19 Pandemic

The COVID-19 pandemic necessitated significant organizational changes to ensure business continuity. Job performance emerged as a critical factor for sustaining operations and overall organizational performance. However, maintaining and shaping job perfor-

mance during the pandemic posed challenges due to the negative impact on employees, resulting in increased stress and a diminished sense of security. In this context, HRM specialists played an increasingly important role in developing strategies that positively influenced the job-related attitudes of employees, thereby improving job performance during these challenging times [19].

The authors of [20,21] suggested measures that can enhance work motivation during the pandemic, such as comfortable workspaces, well-being promotion, positive relationships, and effective communication. By examining attitudes like work motivation, job satisfaction, and organizational commitment, the researchers investigated the impact of COVID-19-oriented HRM strategies in 378 organizations during the COVID-19 pandemic in Poland. It was found that the best results were achieved by combining “hard” HRM strategies related to finances with “soft” HRM strategies focusing on well-being. It has been demonstrated that satisfaction with the organization’s COVID-19 responses is positively correlated with job performance [22]. A well-managed crisis led to a sense of security among employees regarding their health, well-being, and career. The findings of [23] suggest that job-related knowledge, informal communication, and organizational loyalty contribute to the impact of social isolation on job performance. It was evident from qualitative research that hindered development, missed informal conversations, and detachment from the organization played an important role. The extent to which employees are satisfied with their jobs reflects their level of work-related experiences. This relationship cannot be fully understood without a comprehensive understanding of how work motivation is influenced by external factors as well as HRM practices. A fulfilling work environment motivates employees to perform at their best [24–27]. Table 2 presents the performance appraisal strategies adapted along with the corresponding IT tools applied. Similarly, Figure 3 portrays the various IT tools used for the performance appraisal of human resources.

Table 2. Review of studies on performance appraisal strategies used by HRM during the pandemic.

Author	Year	Performance Appraisal Strategy Used	IT Tools
Bieńkowska et al. [19]	2022	Combination of “hard” and “soft” HRM strategies to shape job performance	Virtual meeting tools
Tovmasyan and Minasyan [20]	2020	Additional measures for employee well-being and satisfaction to enhance work motivation and job performance	Video Conferencing and zoom
Wolor et al. [21]	2020	Providing comfortable workspaces, remote work options, promoting well-being, fostering positive relationships, utilizing new technologies, and implementing appropriate communication processes to enhance work motivation and job performance	Virtual meeting tools
Vo-Thanh et al. [22]	2020	Positive relationship between satisfaction with organization’s COVID-19 responses and job performance	Electronic monitoring system
Chaker et al. [23]	2021	Indirect impact of social isolation on job performance mediated by job-related knowledge, informal communications, and loyalty to the organization	Virtual meeting tools
Sapta et al. [24]	2021	HRM practices fulfilling employee needs to stimulate job satisfaction and enhance job performance	Video conferencing
Granziera and Perera [25]	2019	Factors influenced by HRM, such as relationship with superiors, pay, opportunities for advancement and development, and relationships with co-workers, impacting job satisfaction and ultimately job performance	Virtual meeting tool

Table 2. Cont.

Author	Year	Performance Appraisal Strategy Used	IT Tools
Sanders et al. [26]	2020	Effective communication, corporate social responsibility activities, supporting employees, and prioritizing well-being to enhance organizational commitment	Virtual team meeting

Source: authors.

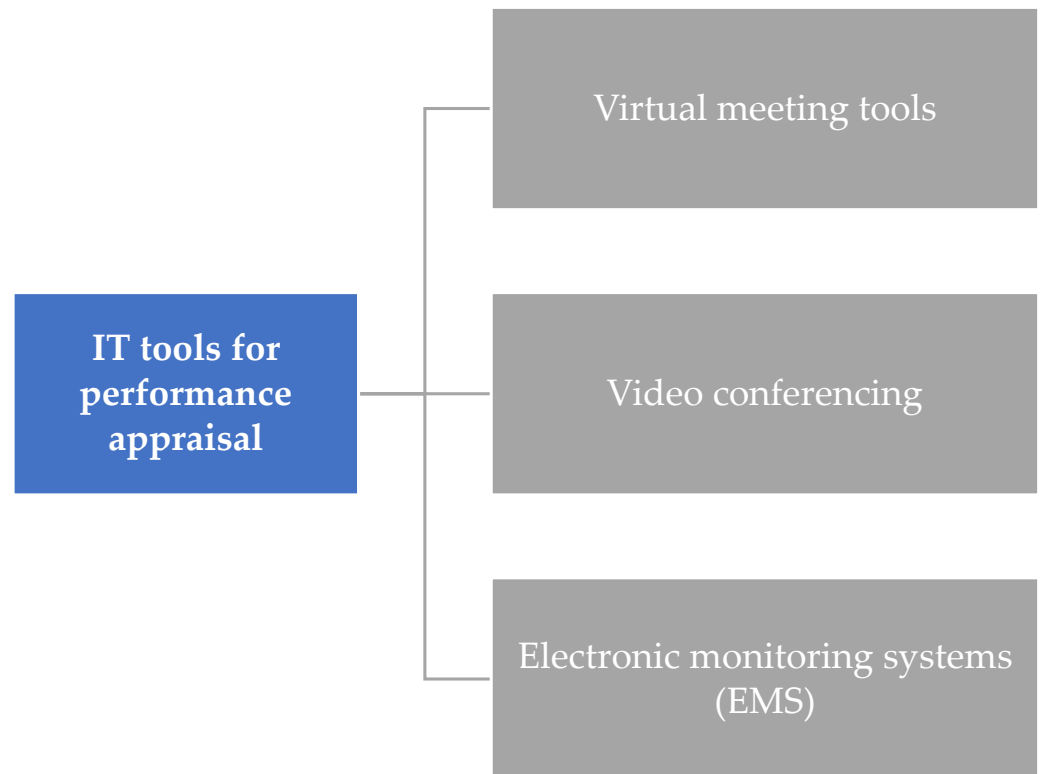


Figure 3. IT tools employed for performance appraisal. Source: authors.

3.3. HR Strategies Used in Training and Development during COVID-19 Pandemic

Employees play a vital role in the productivity, success, and future of any organization, which is why organizations invest significantly in employee development. Employee development not only enhances individual skills but also contributes to the overall growth of the organization. Productive employees lead to the prosperity of the organization as a whole [28]. However, during times of crisis, when survival in the market becomes critical, organizations often take drastic measures that reduce the organization’s flexibility [29]. In such circumstances, the HR department plays a crucial role in managing the consequences of the crisis by reducing stress among employees and strategically minimizing costs [30].

In a crisis, organizations frequently cut down additional expenses related to benefits, promotions, and employee development, despite employees’ increasing expectations. Recruitment is also often reduced or halted, requiring HR departments to implement tools to retain current employees and mitigate potential dissatisfaction resulting from reduced promotion and development opportunities. One of these tools is the adoption of modern practices such as offering alternative job roles, freelance positions, or flexible working times [31]. These actions provide workers a sense of security, which, in turn, during a worldwide crisis improves their performance and likelihood to bond with the company [32]. Consequently, the significance of development and promotion opportunities diminishes during crisis, as their reduction has a minimal effect on employees and their performance.

The authors of [33] conducted a study on the changes in the approach to employee development in organizations as a result of the COVID-19 pandemic. The findings suggest

that in addition to changes in the format and approach of employee training caused by the pandemic, employees also express a need for new topics to support their development. The research also observed a decline in employee engagement and an increase in fatigue resulting from the use of various online development initiatives.

The COVID-19 pandemic has compelled the training market to heavily rely on video formats as a viable alternative to in-person meetings. Professionals in various industries experience everyday interactions through video conferences, webinars, virtual trade fairs, open days, and networking events. It is increasingly evident that remote communication will persist as a prominent aspect of the daily lives of employees, prompting the need to explore effective strategies for implementing developmental processes in order to gain competitive advantages in this new landscape.

According to [34], HR managers faced the significant responsibility of designing effective training programs and implementing suitable training methods to ensure the organization's survival during the pandemic. It was crucial to provide employees with quickly adaptable training that would enable them to navigate the challenges posed by the crisis. Additionally, there was a need to educate employees about the negative impacts of the crisis as well as strategies to cope with it and minimize mental stress. Employees were understandably anxious about the potential loss of their jobs and missed opportunities for promotion. These circumstances presented novel challenges for HR managers that they had not previously encountered.

During the COVID-19 epidemic, ref. [35] conducted research at Oman Air on the effects of training and development on employee performance. The findings of the study demonstrated a favorable relationship between employee performance and training and development.

According to [36], *gamification* is defined as a process of incorporating non-gaming environments (online community, intranet, websites and learning management system/LMS) and people (partners, employees and consumers) to increase their interaction level and collaboration with the host (company, employer and organization). In simpler terms, gamification in HR practices is used as a design element term that incorporates employees' involvement to break larger tasks into smaller ones and increase the productivity, thus attaining the organizational goal [37]. It is utilized by HR departments to foster a positive organizational culture that promotes collaboration across departments, facilitating streamlined processes for product or process improvement and suggestions. This approach encourages employee and co-worker participation for intrinsic motivation and creates a platform for tracking employees who demonstrate potential for promotion, tangible rewards, and salary rises in the future. In the context of learning and training, HR can incorporate gamification elements by transforming training content into interactive games [38]. Activities can be introduced where employees earn points and badges as they progress through different levels. Gamification can also be applied to team-building exercises and projects, allowing employees to engage in competitive and collaborative approaches to business processes, requirements, and events. Moreover, employees can recognize and value each other's achievements through the use of value badges and culture points, which are awarded based on their adherence to company values [39].

As a result of the study conducted by [40], human resource managers face a variety of challenges when trying to retain employees, maintain their mental health, manage anxiety, meet job demands, and motivate employees in the face of increasing competition and the COVID-19 pandemic. Using gamification, this study found that HR managers could implement this tool in a sustainable way. Creative and innovative solutions are crucial to addressing pandemic challenges, especially during outbreaks. HR managers can use gamification to address various challenges and reach sustainability goals by using it as a creative and innovative tool.

The authors of [41] found that a digital learning ecosystem offered convenience and speed during COVID-19, which was especially important during such a crisis. Organizations have been able to adapt swiftly to the new normal due to the adoption of e-learning

culture, thereby ensuring sustainable organizational development and the promotion of decent work and growth. Following the crisis, Bangladesh’s corporate sector and organizational culture underwent significant changes due to the implementation of e-learning and flexible working arrangements. Table 3 presents the training and development strategies adapted along with their corresponding IT tools applied during the COVID-19 pandemic. Similarly, Figure 4 illustrates the various IT tools used for training and development of the human resources.

Table 3. Review of studies on training and development strategies used by HRM during the COVID-19 pandemic.

Author	Year	Strategy Used	IT Tools
Mikolajczyk [33]	2020	Changes in employee development approach due to the pandemic	Video Conferencing Platforms
Saxena [34]	2023	Designing effective training programs during the pandemic	Virtual Reality (VR) Training Platforms
Al-Rawahi [35]	2022	Impact of training and development on employee performance during the pandemic	Online Surveys and Feedback Tools
HR Asia [39]	2020	Gamification in employee training and development	Learning Analytics Dashboards
Kumar et al. [40]	2021	Gamification as a sustainable tool for HR managers during the pandemic	Social Collaboration Tools
Shahriar et al. [41]	2022	Adoption of e-learning culture and flexible working arrangements during the crisis	Time Tracking and Productivity Software

Source: Author.

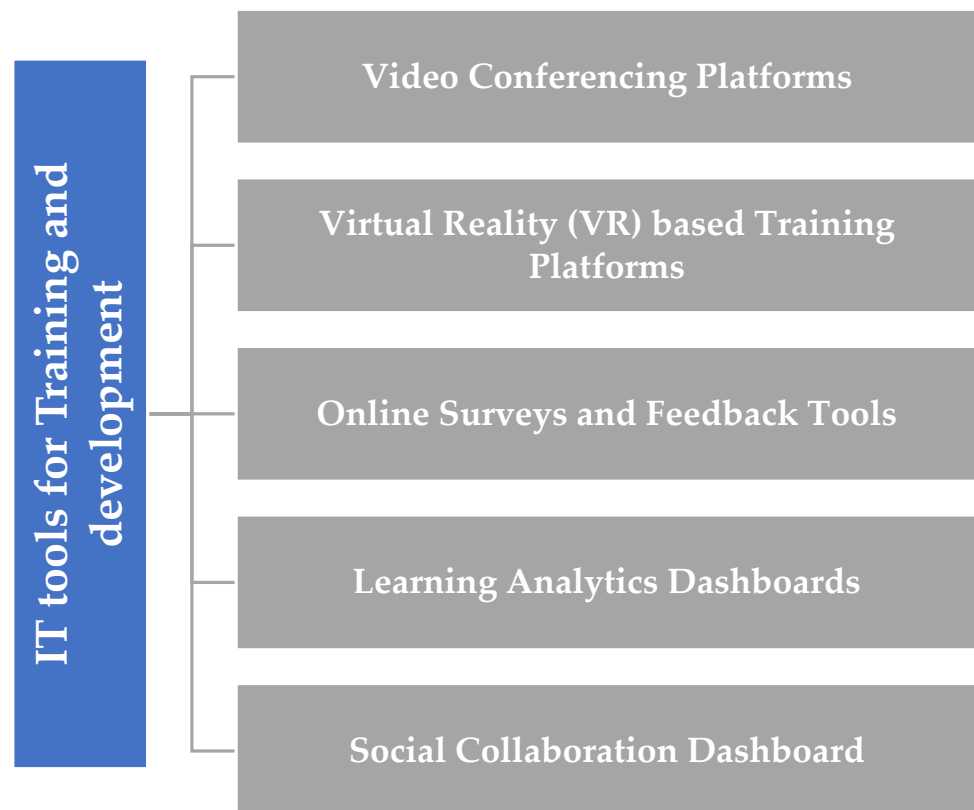


Figure 4. IT tools employed for training and development. Source: authors.

3.4. HR Strategies Used in Compensation and Benefits during COVID-19 Pandemic

Organizations encountered a number of difficulties administering employee remuneration and benefits during the COVID-19 epidemic. To meet the demands of their employees and protect their safety during the pandemic, many organizations implemented the “Taylorian management” method of flexible work arrangements like remote work, flexible hours, or compressed workweeks, which were significantly considered to create a positive impact on job autonomy, according to [42], prior to COVID-19. To overcome the financial restrictions during the epidemic, some organizations imposed salary freezes or reductions [43]. This plan sought to reconcile cost management with a reduction in employment losses. Salary reductions during COVID-19 fortunately motivated employees’ working from home, which gave them job security and motivated them to perform well to secure their position. This in turn increased organizational profit and performance and thus organizational sustainability, which indirectly led to job security and increased salary post-COVID-19 [44].

Employer Aid Programs (EAPs) were introduced or improved to offer aid to workers who experienced a variety of pandemic-related issues, including mental health support, financial counseling, and help balancing work and personal obligations [45]. Aiming to improve healthcare benefits, these organizations have expanded coverage for COVID-19 testing, treatment, and immunizations. Resources and services for mental health support have been highlighted in the study conducted by [46]. In order to ensure that employees were informed of any modifications and their justifications, HR departments realized the value of open and regular communication regarding compensation and benefit changes [47].

The study of [48] focused on enhancing the motivation of communication department of employees in the energy sector by applying game theory tools to optimize their compensation structure. The technique developed made it possible to adjust fixed and commission compensation based on the personal risk preferences of each employee, which raised engagement and improved the efficiency of information and communication campaigns. In light of the existing industry problems and low development levels, the method intended to better match market needs, increase end-user happiness, and eventually contribute to the sustainable expansion of energy firms. The study’s conclusions implied that the creative strategy might result in more fruitful and effective communication within the energy industry. Table 4 presents the strategies adapted for offering compensation and benefits along with the corresponding IT tools used for the same. Similarly, Figure 5 illustrates the various IT tools used for offering compensation and benefits to the human resources.

Table 4. Review of studies on compensation and benefits strategies used by HRM during the pandemic.

Author	Year	Strategy Used	IT Tools
Kelliher and Anderson [42]	2019	Flexible work arrangements	Video Conferencing Tools
Alon et al. [43]	2020	Salary freezes or reductions	Payroll Management Systems
Kang and Ding [45]	2020	Employer Aid Programs (EAPs)	Communication Tools
Gomez and Rosen [46]	2020	Expanded healthcare benefits and mental health support	Employee Wellness Apps
Liu and Zha [47]	2021	Open and regular communication about compensation and benefit changes	Intranet Software

Source: authors.

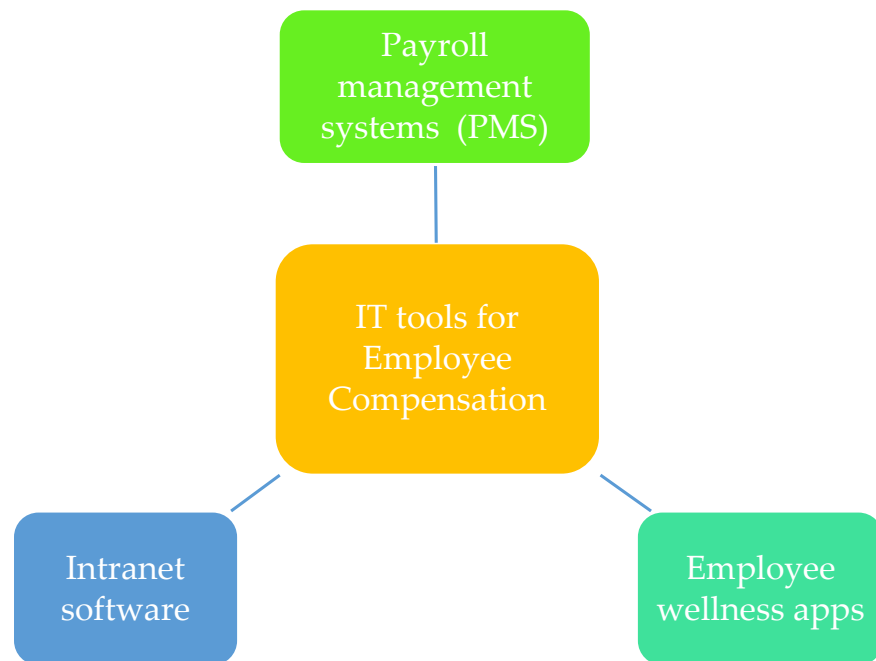


Figure 5. IT tools used for compensation and benefit of employees Source: authors.

3.5. HR Strategies Used in Employee Engagement and Communication during COVID-19 Pandemic

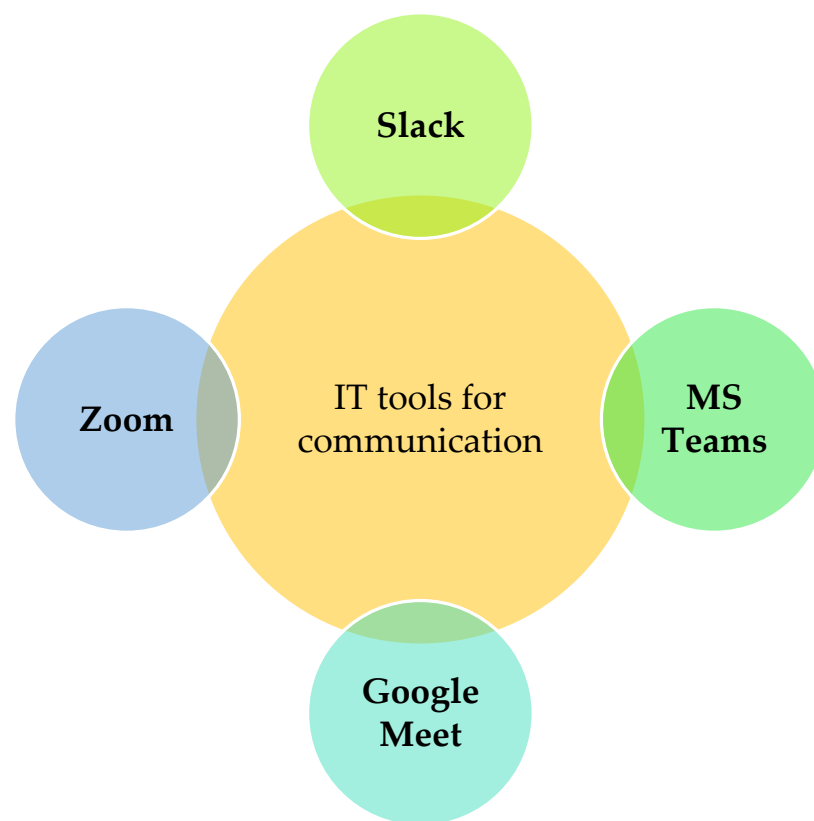
Effective communication within an organization is vital for managing human resources, especially during dynamic changes like the COVID-19 pandemic. Several authors such as [49–51] concluded that only the satisfied employees and their accurate communicational behaviors shaped an organization as a whole, and the exchange of right information at the right time played a crucial role for organizational performance and sustainability. Communication can take different forms (vertical or horizontal) and serve various functions (directive, supportive, cultural, and democratic) [52–57]. It influences employees' emotional commitment, trust, and engagement with the organization. Informal communication reduces resistance to change and facilitates employee adaptation [58–63]. Keeping employees informed about important aspects of the pandemic or the organization's future contributes to their engagement, job satisfaction, and performance [64–67].

During the pandemic, HRM professionals implemented various strategies to enhance employee engagement and communication. Online communication tools and virtual team-building exercises were used to promote collaboration and maintain social ties among employees [68]. Open and frequent communication through channels like email updates, virtual town hall meetings, and intranet platforms helped share crucial information and build trust [69]. HRM experts also emphasized employee inclusion in decision-making processes, seeking their advice and feedback to enhance engagement and loyalty [70]. Additionally, personalized communication and individualized support through regular check-ins, virtual meetings, and wellness surveys contributed to employee well-being [71,72]. These strategies proved effective in reducing physical distance, fostering connection, and supporting employees during challenging times. Figure 3 illustrates the IT tools used by organizations to foster communication within organizations during the COVID-19 pandemic. Table 5 presents the employee engagement strategies adapted along with the corresponding IT tools used for the same. Similarly, Figure 6 illustrates the various IT tools used for employee engagement.

Table 5. Review of studies on strategies used in employee engagement and communication by HRM during the pandemic.

Author(s)	Year	Strategy Used	IT Tools Used for Communication
Huang et al. [68]	2021	Virtual team-building exercises	Zoom, Microsoft Teams
Ramalho et al. [69]	2020	Open and frequent communication	Slack, Microsoft Teams
Shaw et al. [70]	2021	Employee inclusion in decision-making processes	Not Specified
Wu et al. [71]	2020	Personalized communication and individualized support	Zoom, Google Meet, Microsoft Teams
Bravo et al. [72]	2020	Online communication platforms	Slack

Source: authors.

**Figure 6.** IT tools used for communication. Source: authors.

3.6. HR Strategies Used in Employee Well-Being and Personal Support during COVID-19 Pandemic

The COVID-19 pandemic and the resulting societal challenges, such as social isolation and financial uncertainty, have significantly impacted both the physical and mental health of individuals [73]. Researchers found that the general population in China was experiencing stressful and depressive conditions during the pandemic [74,75]. From an organizational perspective, the presence of stress, anxiety, or depression among employees negatively affected the engagement, willingness to work, and overall effectiveness of the employees [76–84]. Therefore, organizations had to prioritize employee well-being to help them navigate through these challenging times.

The concept of well-being is multifaceted, with researchers viewing it as the ability to achieve goals, happiness, life satisfaction, or a global assessment of an individual's quality of life based on their own criteria [85–87]. Amid the COVID-19 pandemic, employees' psychological balance was found to be significantly affected particularly due to

the reduced social interactions and increased sense of isolation in remote work settings, leading to heightened stress levels [88]. Employers had to ensure that employees had unrestricted access to technology, maintained communication channels among colleagues, and facilitated face-to-face-like interactions to mitigate the risks associated with remote work. Consequently, the well-being of employees, particularly those working remotely, was heavily dependent on the personal interactions and social characteristics, which was challenging to provide in the remote work mode.

The authors of [88] also focused on the well-being and mental health of the employees under remote working conditions. The study found through their analysis that nested family-based married women faced many more challenges than men, having to balance their focus on home, health, guests, children and other family members, when there was no support or flexible environment to work. Contrarily, women living alone or depending on their immediate family members had higher productivity and performance than men and married women. The study recommended and concluded that remote working conditions are more preferable for men than women—especially married women within nested families without support. The authors of [88] also insisted and predicted that post-COVID-19 pandemic men would prefer working remotely to working at their organizations. Table 6 presents the strategies adapted for maintaining employee well-being along with the corresponding IT tools used for the same. Similarly, Figure 7 illustrates the various IT tools used for maintaining employee well-being and offering personal support to them.

Table 6. Review of studies on employee well-being and personal support strategies used in HRM during the pandemic.

Author Name	Year	Strategy Used	IT Tools
Sibley et al. [73]	2020	Maintaining physical and mental health	Wellness Apps, Fitness Trackers
Wang et al. [74]	2020	Stress management	Meditation Apps, Mindfulness Apps
Qiu et al. [75]	2020	Face-to-face-like interactions for employee well-being during the pandemic	Counseling through Video Conferencing Platforms (e.g., Zoom, Microsoft Teams)
Prasad et al. [88]	2020	Maintaining physical and mental health	Wellness Apps, Fitness Trackers

Source: authors.

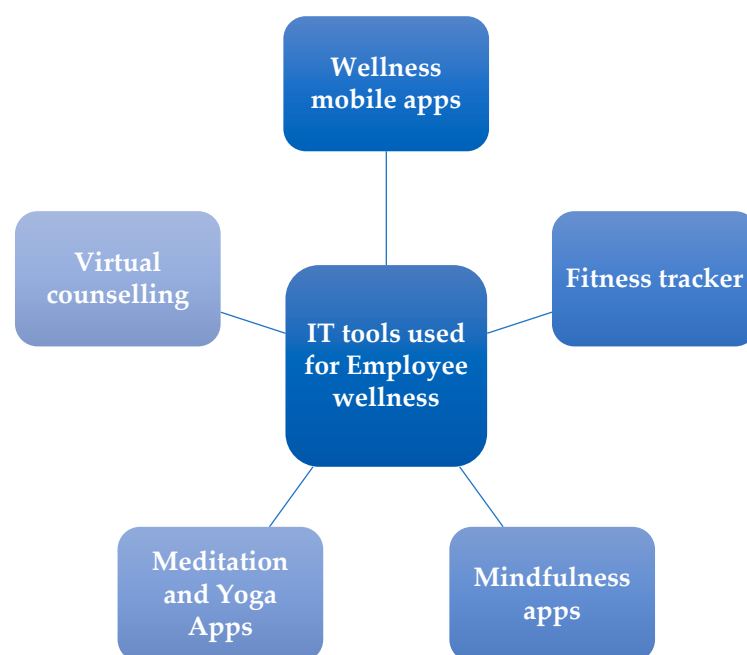


Figure 7. IT tools used for employee well-being. Source: authors.

3.7. Challenges Faced by HR during COVID-19 Pandemic

The authors of [89] conducted an investigation on the challenges and opportunities, as a result of the COVID-19 pandemic. Human resource management (HRM) has played an important role in supporting employees during the period of complete lockdown. Throughout this challenging time, HRM played a vital role in alleviating employee stress and maintaining work continuity, as discussed in the study of [90].

Employee-related challenges were numerous during the pandemic for HR managers. In the beginning, working from home in the presence of family was difficult for organizations that transitioned to a digital work platform. In addition, HR managers were responsible for making sure that the employees who were affected by the virus established a healthy relationship between the organization and other employees [91]. Furthermore, employees no longer had the opportunity to interact with colleagues or engage in social activities during work, which led to a disconnection from their social lives. During this period, there were also concerns about employee safety, changing customer preferences, and the lack of continuous business activities [92]. The human resource management department made considerable efforts to mitigate the negative consequences of working from home.

In a pandemic situation, employees were required to work beyond their usual hours, which was extremely stressful. A new set of policies were developed by HR executives to help employees deal with that stressful situation. Employees worked from home in the presence of their families under COVID-19, which fundamentally changed the work environment. The role of HRM was critical in helping employees to adapt to the new workplace and making sure that they were productive as well.

Another challenge was effectively managing remote work arrangements, facilitating virtual collaboration, and ensuring efficient communication among remote teams [93]. Additionally, HR faced difficulties in managing workforce planning and resourcing, including issues such as workforce reductions, layoffs, and talent acquisition within the context of remote work [94]. Another challenge for HR was promoting employee well-being, addressing mental health concerns, and providing necessary support and resources to employees [95]. Furthermore, HR faced challenges in managing organizational change, facilitating remote onboarding, and assisting employees in adapting to new work arrangements and technologies [96]. Maintaining employee engagement, motivation, and job satisfaction amidst uncertainties and remote work arrangements was also a challenge for HR [97]. Lastly, HR encountered difficulties in managing legal and compliance issues related to remote work, health and safety regulations, and labor laws during the pandemic [98]. Table 7 and Figure 8 portray the challenges that HR managers encountered during the COVID-19 pandemic.

Table 7. Review of studies on challenges faced by HR managers during the pandemic.

Author	Year	Challenges Faced
Dayal et al. [89]	2021	Finding high-quality candidates, reducing employee turnover and making hiring more efficient
Slavic et al. [90]	2021	Difficulties transitioning to remote work, ensuring employee safety
Carnevale and Hatak [91]	2020	Ambiguous working hours, increased workload, adapting to work-from-home environment
Singer-Velush, Sherman, and Anderson [92]	2020	Disconnection from social life, lack of continuous business activities, employee safety concerns, changing customer preferences
Dhir, Yossatorn, Kaur, and Chen [93]	2020	Managing remote work arrangements, virtual collaboration, and communication among remote teams
Sivathanu and Krishnasamy [94]	2020	Managing workforce planning and resourcing, including workforce reductions, layoffs, and talent acquisition in a remote work environment
Cullen, Gulati, and Kelly [95]	2020	Promoting employee well-being, addressing mental health concerns, and providing necessary support and resources

Table 7. Cont.

Author	Year	Challenges Faced
Nguyen and Nguyen [96]	2021	Managing organizational change, facilitating remote onboarding, and helping employees adapt to new work arrangements and technologies
Mishra, Sahoo, and Mishra [97]	2021	Maintaining employee engagement, motivation, and job satisfaction amidst uncertainties and remote work arrangements
Kottaridi and Antoniadis [98]	2021	Managing legal and compliance issues related to remote work, health and safety regulations, and labor laws during the pandemic

Source: authors.



Figure 8. Challenges faced by HR managers during pandemic. Source: authors.

3.8. Research Gap

Recently, researchers have looked at the effect that the COVID-19 pandemic had created on human resource management (HRM) practices. The authors of [18] examined how the pandemic affected hiring practices, notably from the viewpoint of hiring managers, underlining the difficulties and adjustments needed for the new normal. The authors of [9] provided a theoretical understanding of recruiting together with helpful advice for comprehending key ideas in the industry. E-recruitment was examined in depth in the study conducted by [17], which defined its importance in modern hiring practices. The authors of [16] emphasized the crucial role of human resources, particularly in times of crisis like the pandemic, and placed a focus on good HRM practices. From a population-based cohort research study in the US that looked at door-to-door recruiting during the epidemic, ref. [15] concluded that a creative and coercing strategy by investing resources and time is a must for organizations to reach people and communities that lack assistance and aid during pandemic and crisis situations. The authors of [14] examined e-recruitment within the pandemic context of a specific company, Allsec Technologies, and concluded that during the pandemic, usage of the IS and IT tools ([Naukri.com](#), [Monster.com](#), [Shine.com](#) and more) in HR practices improved the performance of the organization and also increased their sustainability. The International Labor Organization stressed ethical recruitment practices during crisis times, especially in times of shortages. Based on a case study of a company in West Java, Indonesia, ref. [13] examined the effectiveness of e-recruitment via social media. To address the challenges posed by the COVID-19 pandemic, ref. [16] proposed a hybrid recruitment and selection system. Social media was found to play an important role in e-recruitment during COVID-19 [11]. A boomerang hiring strategy, which relied on rehiring former employees, was proposed by [10] in the year 2022. The authors of [19] examined key attitudes associated with job performance when incorporating COVID-19 HRM strategies. During the pandemic in 2011, ref. [23] investigated the effect of social isolation on salespersons' job performance in particular. A study by [22] identified the impact of job insecurity and performance on employees' satisfaction within their organization as a response to the COVID-19 outbreak. The authors of [99] investigated how training moderation impacted the performance of HRM practices, focusing on the critical role that HRM plays in achieving organizational goals. In their study of the influence of employee motivation and leadership on employee performance, refs. [100,101] drew evidence from Indonesia regarding the effects of work motivation and leadership on productivity and job satisfaction. The authors of [20] analyzed the impact of motivation on work efficiency, specifically during the pandemic, using a case study from Armenia. The authors of [21] discussed the impact of work motivation on work efficiency with a potential focus on the effect of the pandemic. Finally, ref. [25] explored the relationships between teachers' self-efficacy beliefs, engagement, and work satisfaction, shedding light on employee performance in the education sector.

Although there is extensive research on the HR strategies utilized in various HRM roles during the COVID-19 pandemic, there is a research deficit in terms of in-depth understanding that examines the efficacy and results of these methods. There is a need for study that looks at the integration and synergy between various HR strategies in the context of the pandemic because many studies concentrate on certain parts of HRM functions. Further research is needed to better understand the particular difficulties HR practitioners encountered in putting these techniques into practice as well as how they affected both organizational success and employee well-being.

3.9. A Theoretical Framework on the Role of HR Strategies in Maintaining Sustainability

The COVID-19 epidemic has forced businesses to put sustainability first in order to maintain and flourish over the long term, which has extended the role of HRM. The preservation of the environment, the adoption of sustainable practices, and the welfare of employees and communities have now become the responsibility of HRM. Through this change, the idea of corporate social responsibility (CSR) has increased the value of an

organization among the people, giving rise to a new paradigm known as sustainable human resource management. CSR as a business concept integrates environmental and social concerns with stakeholders along with the operations of the businesses. The above strategy, also known as the triple bottom line (TBL), representing the three facets of sustainability—namely, environment, finance, and social (people)—has gained importance. The notion of HRM that is presently seen as being the most inclusive and complete strategy in terms of organizational sustainability is sustainable HRM [102].

Organizations have faced difficulties as a result of the COVID-19 pandemic, prompting questions about the nature of employment in the future [103]. It has sped up modifications to HRM procedures and promoted the adoption of scenario-based planning (business strategy) as a crisis management strategy. In order to survive and sustain their businesses, organizations are today reexamining their HRM strategies and embracing information technology as a vital ally. To help businesses adjust to this quick change, new laws have been established in a number of nations. It is thus understandable that to gain organizational sustainability, utilization of the IS and IT tools (performance appraisal, training and development, benefits, compensation, and more) during and post-COVID-19 seems rather highly effective.

The COVID-19 epidemic has caused a rise in virtual meetings and remote working. Despite the fact that it is unknown whether all businesses would continue remote work after the pandemic, a report by [104] shows that distant work and virtual meetings will continue but at a lower intensity than during the height of COVID-19. In industries with significant human involvement, such as healthcare and personal care, the pandemic has also expedited the deployment of automation through the usage of IS and IT tools. Authors [105] have stressed the need for utilizing IT tools for HRM amid health emergencies to shield personnel and avoid business interruptions. According to [106], predictive models and IS should be used in supply planning and scheduling. Since not all workers may possess the required technological capabilities, it is important to establish the individual training requirements for each employee when integrating new technology into HRM [107]. Employee involvement in the transition process and ongoing communication with them may lower anxiety and foster a sense of trust inside the company.

To enable flexible work arrangements and the shift to a hybrid working model, organizational culture must be rebuilt [108]. Especially for individuals who work remotely, maintaining a coherent culture that fosters relationships and exchanges among employees is essential. The authors of [109] and other authors have advised creating a digital organizational culture handbook that distant employees may access as well as toolkits that supported and communicated the symbolic parts of the culture.

Figure 9 illustrates the conceptual model that has been developed based on the review to associate the variable HR strategies and organizational sustainability.

The following propositions are derived from the model given in Figure 5:

1. **P1:** IT tools adopted by HR managers for planning and recruitment during the COVID-19 pandemic helped organizations attain organizational sustainability.
2. **P2:** IT tools adopted by HR managers for performance appraisal during the COVID-19 pandemic helped organizations attain organizational sustainability.
3. **P3:** IT tools adopted by HR managers for training and development during the COVID-19 pandemic helped organizations attain organizational sustainability.
4. **P4:** IT tools adopted by HR managers for offering compensation and benefits to employees during the COVID-19 pandemic helped organizations attain organizational sustainability.
5. **P5:** IT tools adopted by HR managers for offering communication and engagement during the COVID-19 pandemic helped organizations attain organizational sustainability.
6. **P6:** IT tools adopted by HR managers for employee well-being and personal support during the COVID-19 pandemic helped organizations attain organizational sustainability.

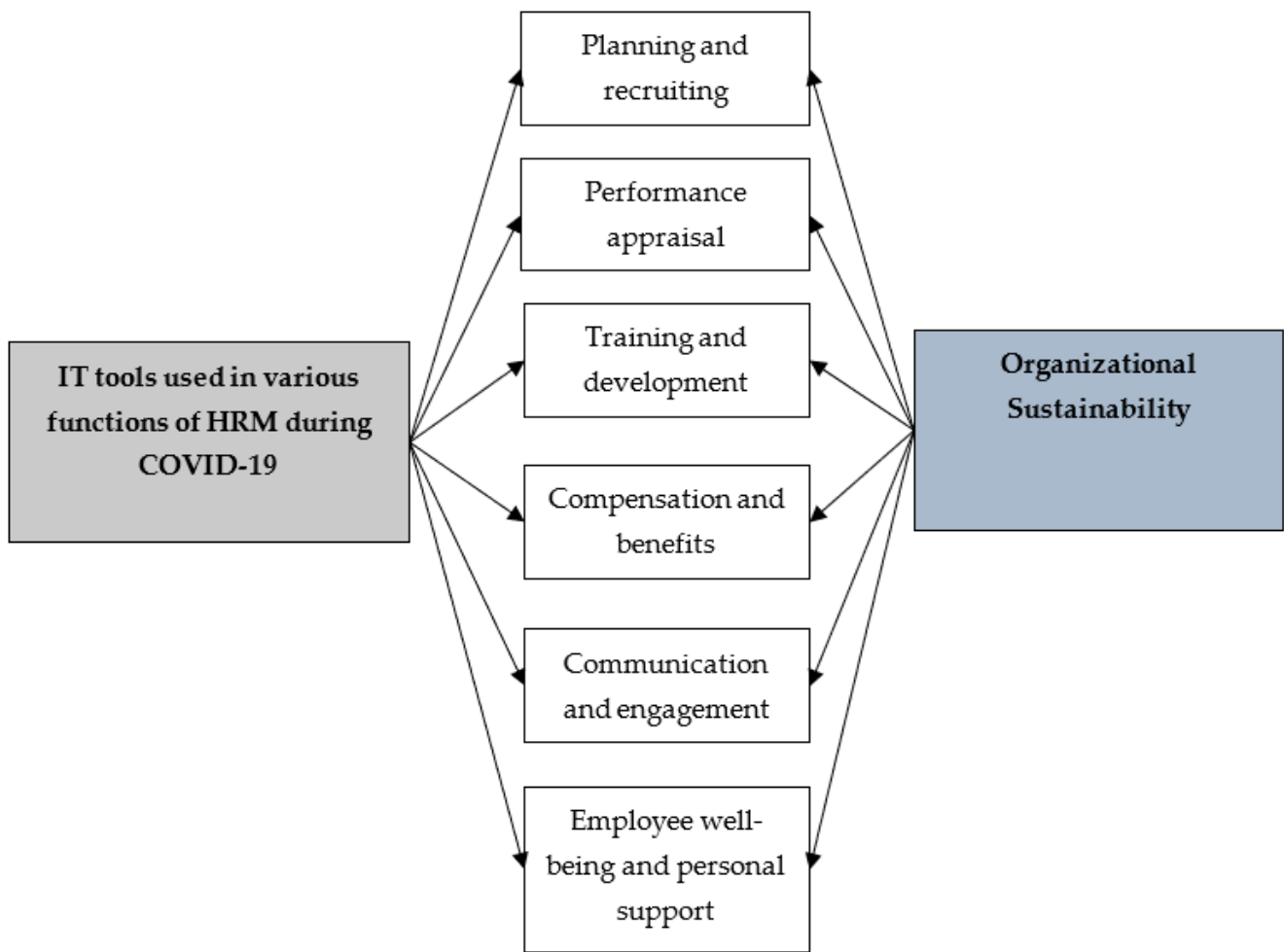


Figure 9. Association between HR strategies and organizational sustainability. Source: authors.

4. Discussion

During the COVID-19 pandemic, HR departments implemented various strategies to adapt to the new work environment and support employees. Figure 10 presents the various strategies adapted for performing the different functions of human resource management. These strategies included virtual interviews and remote onboarding for recruitment, virtual performance evaluations and continuous feedback for performance appraisal, e-learning platforms and virtual training sessions for training and development, revised compensation structures and flexible work arrangements for compensation and benefits, virtual team-building activities and transparent communication for employee engagement and communication, and mental health resources and flexible work arrangements for employee well-being and personal support. However, HR departments also faced challenges such as managing remote teams, addressing employee well-being, ensuring effective communication, and adapting to changes in work processes and regulations. Despite these challenges, HR played a vital role in supporting employees and sustaining business operations during the crisis.



Figure 10. Strategies used in different HR functions. Source: authors.

Comparative Analysis

The systematic review focused on the COVID-19 pandemic and how the organizations used their HRM practices and strategies to formulate solutions during the crisis. To know the changes in the HR practices, HRM strategies and solutions for crisis management, few studies have been analyzed, compared and presented as follows:

- **Pre-COVID-19:** For employees to be satisfied with their work, it was essential to have appropriate HRM practices in place [110]. Job satisfaction and performance were positively related to HRM practices [111–113]. It was demonstrated that HRM strategies that promoted employee performance were effective [99] and as long as employees were engaged and performing well, they were more likely to stay with the company. The effectiveness of HRM practices enhanced organizational commitment, i.e., identifying, assuming, and fulfilling responsibilities, and avoiding quitting the company [114–116]. Employee behavior was positively impacted by organizational commitment [117,118]. Employees who were committed to achieving organizational goals were more likely to act in a positive manner [119,120]. In numerous studies [121–129], commitment to the organization was positively correlated with job performance.
- **During COVID-19:** The HR strategies adapted during COVID-19 by the organizations for effective human resource management was studied by several authors. The authors of [130] examined the crisis management, and 6Cs concept (compensation, caring culture, creativity, collaboration and coordination, clean/hygiene and communication) was adapted as an HR practice during COVID-19. The study by [131] concluded that

adapting to new changes during the pandemic initially caused a denial of changes that affected the physical and psychological stability of employees. However, with the assistance of IS and IT tools, employees accepted the changes which, in turn, increased their productivity and performance. The authors of [132] examined and concluded that good HRM and HR practices (adopting IT tools and IS) positively impacted the organizational sustainability globally, whereas the bad HRM and HR practices failed to sustain. The authors of [133] insisted that COVID-19 altered the organizational functions and operations. According to the author, the challenges faced by the HR personnel in staffing, training and development, monitoring and guiding, performance appraisals, benefits, compensation, health and safety management (well-being), employee–employer relationships and recruiting and planning for virtual teams affected the organizational sustainability. However, it was concluded that positive HRM strategies during COVID-19 increased the organizational productivity, which had an indirect association with the employees’ performances, motivation, mental well-being, productivity and satisfaction.

- **Post COVID-19:** Several authors like [44,134–137] studied the practice of incorporating more IT tools and ISs by the HR as a part of the working culture post-COVID-19. The conclusions from the studies revealed that employees’ performances increased when they used IT tools and ISs in remote work settings. Hence, the authors insisted that removing the usage of IT tools and ISs post COVID-19 will decrease the productivity and performance. Hence, it is recommended and argued among the researchers that implementing an IT tools-based working culture and the usage of ISs in regular working mode as well will motivate employees and result in organizational sustainability.
- **Role of HR during COVID-19:** In order to help organizations overcome the obstacles posed by the COVID-19 pandemic and develop strategies to achieve their goals, human resource management is essential. This entails putting employee well-being first while striving to meet the organization’s objectives for the COVID-19 pandemic [138]. HR professionals were responsible for motivating employees and providing them with adequate support during the abrupt transition in their work mode [139]. Numerous studies have emphasized the significance of organizational support during times of crisis [140]. It is clear that ensuring the internal consistency of these support measures is crucial not only in how they relate to each other when implemented during a crisis but also in alignment with established practices from the past, as this alignment can enhance their positive effects on employees.

The HR practices during COVID-19—namely, work from home and virtual meetings—have been withdrawn by many organizations, since the pandemic was controlled and the employees were asked to start working at their respective organizations in person (Newman et al., 2023 [44]). Similarly, onboarding was found by organizations as an easier task in e-recruiting post COVID-19. Using software, IT tools and ISs, the performance management attained more exposure than the traditional PMS approach. Hence, it is safer and evident to assume that virtual assistance through IT tools via Information Systems as a medium in the HRM during COVID-19 was highly more significant than before and after the COVID-19 pandemic crisis. The crisis management-based strategic planning and implementation by HR professionals made use of IT tools to communicate, evaluate, monitor and execute the functions effectively and efficiently. Similarly post-COVID-19, the utilization of optional work stations (home and office) has positively impacted the employees’ mental well-being and has directly resulted in impacting higher performances.

5. Conclusions

In conclusion, the COVID-19 epidemic has confronted HR professionals with difficulties that they had never seen before, prompting the adoption of novel approaches in a number of HRM activities. To fulfill the specific requirements of the pandemic, all of the functions of Human Resource management such as planning and recruitment, performance evaluation, training and development, remuneration and benefits, employee engagement

and communication, employee well-being and personal support had required the adaptation of new strategies. Further investigation is required to evaluate the efficacy and results of these tactics, examine the integration and synergy between various HR activities, and comprehend the unique difficulties faced by HR professionals. Organizations may improve their handling of the current crisis and the effectiveness of their HR procedures for the benefit of both their workforce and overall organizational performance by filling these research gaps.

6. Theoretical and Practical Implications

COVID-19 provided new opportunities in HRM and HR practices where the upper management and HR personnel in organizations were practically able to understand the challenges and opportunities during such a pandemic. This systematic review provided insights into the issues, challenges, opportunities and solutions by the HRM during the pandemic to plan and implement effective strategies that are relevant to the situation. Theoretically, adapting and implementing a positive HRM with good HR practices increases the organizational sustainability, which can overcome any natural disaster or crisis. The research implies that making use of Information Systems and IT tools during the COVID-19 pandemic has enabled effective Human Resource Management in all the areas such as performance appraisal, compensation and benefits, training and development, engagement and communication, employee well-being and recruiting and planning) compared with the pre-COVID-19 operations, which did not use these IT tools. Thus, it is implied that employing IT tools into HRM and adopting ISs into HRM are significant approaches which indeed will increase the productivity and in-turn help achieve organizational sustainability.

7. Limitations and Future Scope

The research has been limited to the COVID-19 pandemic period. Therefore, the time period of study which has been considered is from 2019 to 2021. English language-based articles have been considered and non-English language based articles have been excluded. In future cross-sectional-based systematic reviews, filtering the titles and abstract with country as the element of screening can be carried out. The current research contributes information on HRM strategies and HR practices during COVID-19 and how the IT tools were implemented and used by the organizations for sustainability. In the future, other aspects like rewards, leadership, culture and job satisfaction can be the focus of analysis from a broader perspective.

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References

1. Risley, C. Maintaining performance and employee engagement during the COVID-19 pandemic. *J. Libr. Adm.* **2020**, *60*, 653–659. [[CrossRef](#)]
2. Yoosefi Lebni, J.; Abbas, J.; Moradi, F.; Salahshoor, M.R.; Chaboksavar, F.; Irandoost, S.F.; Nezhaddadgar, N.; Ziapour, A. How the COVID-19 pandemic affected economic, social, political, and cultural factors: A lesson from Iran. *Int. J. Soc. Psychiatry* **2021**, *67*, 298–300. [[CrossRef](#)] [[PubMed](#)]
3. Chanana, N.; Sangeeta. Employee engagement practices during COVID-19 lockdown. *J. Public Aff.* **2020**, *21*, e2508. [[CrossRef](#)] [[PubMed](#)]
4. De Leon, V. Human Resource Management during the COVID-19 Pandemic. Ph.D. Thesis, California State University, Northridge, Los Angeles, CA, USA, 2020.

5. Roggeveen, S.; Chen, S.-W.; Harmony, C.R.; Ma, Z.; Qiao, P. The adaption of post COVID-19 in IHRM to mitigate changes in employee welfare affecting cross-cultural employment. *IETI Trans. Econ. Manag.* **2020**, *1*, 1–18.
6. Prasad, R.S. Redefining the Role of HRM in Sustainability in COVID 19 Pandemic & Future: A Conceptual & Strategic Framework. In Proceedings of the 5th International Conference on Sustainable Development: A Roadmap to an Equitable Planet (GDGU ICON-2022) Organized by the School of Management, GD Goenka University, Gurgaon, India, 20–21 June 2022.
7. Hamouche, S. COVID-19 and employees' mental health: Stressors, moderators and agenda for organizational actions. *Emerald Open Res.* **2020**, *2*, 15. [CrossRef]
8. International Labour Organization (ILO). *Ensuring Fair Recruitment during the COVID-19 Pandemic*; International Labour Organization: Geneva, Switzerland, 2020.
9. Green, M. Recruitment: An Introduction. 2020. Available online: <https://www.cipd.ie/news-resources/practical-guidance/factsheets/recruitment#7034> (accessed on 28 August 2023).
10. Raveendra, P.V.; Satish, Y.M. Boomerang hiring: Strategy for sustainable development in COVID-19 era. *Hum. Syst. Manag.* **2022**, *41*, 277–282. [CrossRef]
11. Mallik, D.M.A.; Ptel, A. Social Posting in COVID-19 Recruiting Era—Milestone HR Strategy Augmenting Social Media Recruitment. *DogoRangsang Res. J.* **2020**, *10*, 82–89.
12. Amaliyah; Cahyo, F.R.D.; Reindrawati, D.Y. The Hybrid System for Recruitment and Selection during COVID-19 Pandemic. *Glob. Bus. Manag. Res. Int. J.* **2022**, *14*, 1595–1604.
13. Husna, J.; Sadiqin, S.; Muhaimin, Y.; Fitriyana, F.; Wahdiyah, R. The Effectiveness of E-Recruitment Method through Social Media (Case Study at Pt Es Teh Indonesia Makmur—West Java). *E3S Web Conf.* **2021**, *317*, 05012. [CrossRef]
14. Siddharthan, R.; Palani, A. A Study on E Recruitment during Pandemic at ALLSEC Technologies. *Int. J. Creat. Res. Thoughts* **2022**, *10*, a571–a575.
15. Karasik, J. Door-to-door recruitment during the COVID-19 pandemic: Lessons learned from a population based, longitudinal cohort study in North Carolina, USA. *Res. Sq.* **2022**, 1–9. [CrossRef]
16. Sands, L. Why Is Human Resources Important?—Breathe HR, 22 June 2021. Available online: <https://www.breathehr.com/en-gb/blog/topic/business-process/why-is-human-resources-important> (accessed on 23 August 2023).
17. TalentLyft. What Is E-Recruitment. 2022. Available online: <https://www.talentlyft.com/en/resources/what-is-e-recruitment> (accessed on 25 August 2023).
18. Jezzini, S.M.M. An Investigation into the Impact of the Pandemic on Recruitment Methods from a Recruiters' Perspective. Master's Thesis, National College of Ireland, Dublin, Ireland, 2022.
19. Biełkowska, A.; Koszela, A.; Sałamacha, A.; Twarek, K. COVID-19 oriented HRM strategies influence on job and organizational performance through job-related attitudes. *PLoS ONE* **2022**, *17*, e0266364. [CrossRef]
20. Tovmasyan, G.; Minasyan, D. The Impact of Motivation on Work Efficiency for Both Employers and Employees also during COVID-19 Pandemic: Case Study from Armenia. *Bus. Ethics Leadersh.* **2020**, *4*, 25–35. [CrossRef]
21. Wolor, C.W.; Solikhah, S.; Fidhyallah, N.F.; Lestari, D.P. Effectiveness of E-Training, E-Leadership, and Work Life Balance on Employee Performance during COVID-19. *J. Asian Financ. Econ. Bus.* **2020**, *7*, 443–450. [CrossRef]
22. Vo-Thanh, T.; Vu, T.V.; Nguyen, N.P.; Nguyen, D.V.; Zaman, M.; Chi, H. How does hotel employees' satisfaction with the organization's COVID-19 responses affect job insecurity and job performance? *J. Sustain. Tour.* **2020**, *29*, 907–925. [CrossRef]
23. Chaker, N.N.; Nowlin, E.L.; Walker, D.; Anaza, N.A. Alone on an island: A mixed-methods investigation of salesperson social isolation in general and in times of a pandemic. *Ind. Mark. Manag.* **2021**, *96*, 268–286. [CrossRef]
24. Sapta, I.K.S.; Muafi, M.; Setini, N.M. The Role of Technology, Organizational Culture, and Job Satisfaction in Improving Employee Performance during the COVID-19 Pandemic. *J. Asian Financ. Econ. Bus.* **2021**, *8*, 495–505.
25. Granziera, H.; Perera, H. Relations among Teachers' Self-Efficacy Beliefs, Engagement, and Work Satisfaction: A Social Cognitive View. *Educ. Psychol.* **2019**, *58*, 75–84. [CrossRef]
26. Sanders, K.; Nguyen, P.T.; Bouckenooghe, D.; Rafferty, A.; Schwarz, G. Unraveling the What and How of Organizational Communication to Employees during COVID-19 Pandemic: Adopting an Attributional Lens. *J. Appl. Commun. Res.* **2020**, *56*, 289–293. [CrossRef]
27. Hameed, A.; Waheed, A. Employee Development and Its Affect on Employee Performance: A Conceptual Framework. *Int. J. Bus. Soc. Sci.* **2011**, *2*, 224–229.
28. Antonacopoulou, E.P. Employee development through self-development in three retail banks. *Pers. Rev.* **2000**, *29*, 491–508. [CrossRef]
29. Staw, B.M.; Sandelands, L.E.; Dutton, J.E. Threat Rigidity Effects in Organizational Behavior: A Multilevel Analysis. *Adm. Sci. Q.* **1981**, *26*, 501–524. [CrossRef]
30. Vardarlier, P. Strategic Approach to Human Resources Management during Crisis. *Procedia Soc. Behav. Sci.* **2016**, *235*, 463–472. [CrossRef]
31. Zaidi, S.A. *Issues in Pakistan's Economy*; Oxford University Press: Oxford, UK, 2005.
32. Wynen, J.; Op De Beeck, S. The impact of the financial and economic crisis on turnover intention in the U.S. federal government. *Public Pers. Manag.* **2014**, *43*, 565–585. [CrossRef]
33. Mikolajczyk, K. Changes in the approach to employee development in organisations as a result of the COVID-19 pandemic. *Eur. J. Train. Dev.* **2020**, *46*, 544–562. [CrossRef]

34. Saxena, S. COVID-19 crisis and challenges for human resource management. *Int. J. Humanit. Soc. Sci. Manag.* **2023**, *3*, 59–63.
35. AL-Rawahi, M.H. A Research Study on the Impact of Training and Development on Employee Performance during COVID-19 Pandemic. *Int. J. Manag. Stud. Res.* **2022**, *10*, 1007001. [[CrossRef](#)]
36. Reinhardt, J.; Skyes, J. Special Issue Commentary: Digital Game and Play Activity in L2 Teaching and Learning. *Lang. Learn. Technol.* **2014**, *18*, 2–8.
37. Santos, S.A.; Trevisan, L.N.; Veloso, E.F.R.; Treff, M.A. Gamification in training and development processes: Perception on effectiveness and results. *Gamification Train. Dev.* **2021**, *28*, 133–146. [[CrossRef](#)]
38. Nieto-Escamez, F.A.; Roldán-Tapia, M.D. Gamification as Online Teaching Strategy during COVID-19: A Mini-Review. *Front. Psychol.* **2021**, *12*, 648552. [[CrossRef](#)]
39. HR Asia. The Importance of Gamification during a Pandemic. 2020. Available online: <https://hr.asia/featured/the-importance-of-gamification-during-a-pandemic/> (accessed on 15 August 2023).
40. Kumar, A.; Pujari, P.; Thatta, S.; Manocha, S. Gamification as a Sustainable Tool for HR Managers. *Acta Univ. Bohem. Merid.* **2021**, *24*, 1–14. [[CrossRef](#)]
41. Shahriar, S.H.B.; Arafat, S.; Islam, I.; Nur, J.M.E.H.; Rahman, S.; Khan, S.I.; Alam, M.S. The emergence of e-learning and online-based training during the COVID-19 crisis: An exploratory investigation from Bangladesh. *Manag. Matters* **2022**, *20*, 1–15. [[CrossRef](#)]
42. Kelliher, C.; Anderson, D. Doing more with less? Flexible working practices and the intensification of work. *Hum. Relat.* **2010**, *63*, 83–106. [[CrossRef](#)]
43. Alon, T.; Doepke, M.; Olmstead-Rumsey, J.; Tertilt, M. *The Impact of COVID-19 on Gender Equality*; NBER Working Paper No. 26947; National Bureau of Economic Research: Cambridge, MA, USA, 2020.
44. Newman, A.; Ferrer, J.; Andersen, M.; Zhang, Y. Human resource management in times of crisis: What have we learnt from the recent pandemic? *Int. J. Hum. Resour. Manag.* **2023**, *34*, 2857–2875. [[CrossRef](#)]
45. Kang, L.; Ding, Y. Health inequality and COVID-19: A causal link? *Soc. Sci. Med.* **2020**, *269*, 113358.
46. Gomez, S.; Rosen, B. Compensation and Benefits for Remote Workers during COVID-19: How to Address New Risks? *Compens. Benefits Rev.* **2020**, *52*, 285–290.
47. Liu, X.; Zha, J. The impact of COVID-19 pandemic on organizations: Rethinking the design of HRM practices. *Hum. Resour. Manag. Rev.* **2021**, *31*, 101987.
48. Malynovska, Y.; Bashynska, I.; Cichoń, D.; Malynovskyy, Y.; Sala, D. Enhancing the Activity of Employees of the Communication Department of an Energy Sector Company. *Energies* **2022**, *15*, 4701. [[CrossRef](#)]
49. Zito, M.; Ingusci, E.; Cortese, C.G.; Giancaspro, M.L.; Manuti, A.; Molino, M.; Signore, F.; Russo, V. Does the End Justify the Means? The Role of Organizational Communication among Work-from-Home Employees during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* **2021**, *18*, 3933. [[CrossRef](#)]
50. Mumby, D.K.; Kuhn, T.R. *Organizational Communication: A Critical Introduction*; SAGE: New York, NY, USA, 2019.
51. Goldhaber, G.M. *Organizational Communication*; Book News, Inc.: Portland, OR, USA, 1993.
52. Samson, D.; Daft, R. *Management*; Cengage Learning Australia: Melbourne, Australia, 2008.
53. Dwyer, J. *The Business Communication Handbook*; Prentice Hall: Hoboken, NJ, USA, 2009.
54. Katz, D.; Kahn, R.L. The Taking of Organizational Roles. In *The Social Psychology of Organizations*; Routledge: Oxfordshire, UK, 1978; pp. 185–221.
55. Ramus, C.A. Organizational support for employees: Encouraging creative ideas for environmental sustainability. *Calif. Manag. Rev.* **2001**, *43*, 85–105. [[CrossRef](#)]
56. Keyes, M.W.; Hanley-Maxwell, C.; Capper, C.A. Spirituality? It's the core of my leadership: Empowering leadership in an inclusive elementary school. *Educ. Adm. Q.* **1999**, *35*, 203–237. [[CrossRef](#)]
57. Bantz, C.R.; Pepper, G.L. *Understanding Organizations: Interpreting Organizational Communication Cultures*; University of South Carolina Press: Columbia, SC, USA, 1993.
58. Pol, M.; Hlouskova, L.; Novotny, P.; Vaclavikova, E.; Zounek, J. School Culture as an Object of Research. *Online Submiss.* **2005**, *5*, 147–165.
59. Dee, J.; Leisyte, L. Knowledge sharing and organizational change in higher education. *Learn. Organ.* **2017**, *24*, 355–365. [[CrossRef](#)]
60. Saunders, M.N.; Dietz, G.; Thornhill, A. Trust and distrust: Polar opposites, or independent but co-existing? *Organ. Stud.* **2014**, *35*, 639–665. [[CrossRef](#)]
61. Giauque, D. Attitudes Toward Organizational Change among Public Middle Managers. *Public Pers. Manag.* **2014**, *44*, 70–98. [[CrossRef](#)]
62. Rogiest, S.; Segers, J.; van Witteloostuijn, A. Climate, communication and participation impacting commitment to change. *J. Organ. Chang. Manag.* **2015**, *28*, 1094–1106. [[CrossRef](#)]
63. Král, P.; Králová, V. Approaches to changing organizational structure: The effect of drivers and communication. *J. Bus. Res.* **2016**, *69*, 5169–5174. [[CrossRef](#)]
64. Appelbaum, S.H.; Cameron, A.; Ensink, F.; Hazarika, J.; Attir, R.; Ezzedine, R.; Shekhar, V. Factors that impact the success of an organizational change: A case study analysis. *Ind. Commer. Train.* **2017**, *49*, 213–230. [[CrossRef](#)]
65. Taylor, H.; Fieldman, G.; Altman, Y. E-mail at work: A cause for concern? The implications of the new communication technologies for health, wellbeing, and productivity at work. *J. Organ. Transform. Soc. Chang.* **2008**, *5*, 159–173. [[CrossRef](#)]

66. Eppler, M.J.; Mengis, J. The concept of information overload: A review of literature from organization science, accounting, marketing, MIS, and related disciplines. In *Kommunikation im Wandel*; Springer: Wiesbaden, Germany, 2004; pp. 271–305.
67. Hargie, O.; Tourish, D.; Wilson, N. Communication audits and the effects of increased information: A follow-up study. *Int. J. Bus. Commun.* **2002**, *39*, 414–436. [[CrossRef](#)]
68. Huang, Y.; Liu, H.; Zhao, W.; Yuan, B. From the perspective of human resource management: A review of corporate countermeasures during the COVID-19 pandemic. *Int. J. Environ. Res. Public Health* **2021**, *18*, 4014. [[CrossRef](#)]
69. Ramalho, N.; Nunes, C.; Nunes, M. Employee engagement and the COVID-19 pandemic: The role of HRM practices. *Sustainability* **2020**, *12*, 8764. [[CrossRef](#)]
70. Shaw, S.; Fisher, C.; Morris, A.; Vidal-Brown, D. HR's response to COVID-19: The influence of employee voice on furlough opinions and organizational reputation. *Int. J. Hum. Resour. Manag.* **2021**. [[CrossRef](#)]
71. Wu, M.; Xu, W.; Yao, Y.; Zhang, L.; Guo, L.; Fan, J.; Chen, J. Mental health status of students' parents during COVID-19 pandemic and its influence factors. *Gen. Psychiatry* **2020**, *33*, e100250. [[CrossRef](#)]
72. Crapun, A.; Llorens, F.; Torrent-Sellens, J. Exploring the impact of the COVID-19 pandemic on employees' work engagement and emotional exhaustion: The role of teleworking intensity. *Sustainability* **2020**, *12*, 8760. [[CrossRef](#)]
73. Sibley, C.G.; Greaves, L.M.; Satherley, N.; Wilson, M.S.; Overall, N.C.; Lee, C.H.; Milojev, P.; Bulbulia, J.; Osborne, D.; Milfont, T.L.; et al. Effects of the COVID-19 Pandemic and Nationwide Lockdown on Trust, Attitudes Toward Government, and Well-Being. *Am. Psychol.* **2020**, *75*, 618–630. [[CrossRef](#)]
74. Wang, C.; Pan, R.; Wan, X.; Tan, Y.; Xu, L.; Ho, C.S.; Ho, R.C. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int. J. Environ. Res. Public Health* **2020**, *17*, 1729. [[CrossRef](#)]
75. Qiu, J.; Shen, B.; Zhao, M.; Wang, Z.; Xie, B.; Xu, Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *Gen. Psychiatry* **2020**, *33*, e100213. [[CrossRef](#)]
76. Sullivan, S.E.; Bhagat, R.S. Organizational Stress, Job Satisfaction, and Job Performance: Where Do We Go from Here? *J. Manag.* **1992**, *18*, 353–374. [[CrossRef](#)]
77. Norris, F.H.; Friedman, M.J.; Watson, P.J. 60,000 Disaster victims speak: Part II. Summary and implications of the disaster mental health research. *Psychiatry* **2002**, *65*, 240–260. [[CrossRef](#)]
78. Seligman, M. Positive psychology, positive prevention, and positive therapy. In *Handbook of Positive Psychology*; Oxford University Press: Oxford, UK, 2002; pp. 3–12.
79. Zikmund, V. Health, well-being, and the quality of life: Some psychosomatic reflections. *Neuroendocrinol. Lett.* **2003**, *24*, 401–403. [[PubMed](#)]
80. Pollard, E.L.; Lee, P.D. Child well-being: A systematic review of the literature. *Soc. Indic. Res.* **2003**, *61*, 59–78. [[CrossRef](#)]
81. Pflanz, S.E.; Ogle, A.D. Job stress, depression, work performance, and perceptions of supervisors in military personnel. *Mil. Med.* **2006**, *171*, 861–865. [[CrossRef](#)]
82. Statham, J.; Chase, E. Childhood Wellbeing: A brief overview. In *Children's Society*; Childhood Wellbeing Research Centre: Loughborough, UK, 2010; pp. 1–19.
83. Rees, G.; Goswami, H.; Bradshaw, J. Developing an index of children's subjective well-being in England. *Child Indic. Res.* **2010**, *3*, 523–543.
84. Bonanno, G.A.; Brewin, C.R.; Kaniasty, K.; La Greca, A.M. Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychol. Sci. Public Interest* **2010**, *11*, 1–49. [[CrossRef](#)] [[PubMed](#)]
85. Cooper, R.; Boyko, C.; Codinhoto, R. *Mental Capital and Wellbeing: Making the Most of Ourselves in the 21st Century*; Foresight: Mental Capital and Wellbeing: London, UK, 2008; pp. 1–172.
86. Shin, D.C.; Johnson, D.M. Avowed happiness as an overall assessment of the quality of life. *Soc. Indic. Res.* **1978**, *5*, 475–492. [[CrossRef](#)]
87. Dodge, R.; Daly, A.; Huyton, J.; Sanders, L. The challenge of defining wellbeing. *Int. J. Wellbeing* **2012**, *2*, 222–235. [[CrossRef](#)]
88. Prasad, K.D.V.; Mangipudi, M.R.; Vaidya, R.W.; Muralidhar, B. Organizational climate, opportunities, challenges, and psychological wellbeing of remote working employees during the COVID-19 pandemic: A general linear model approach with reference to the information technology industry in Hyderabad. *Int. J. Adv. Res. Eng. Technol.* **2020**, *11*, 372–389.
89. Dayal, G.; Divya, J.; Thakur, D.; Baddi, H.; Pradesh; Asamoah-Appiah, W.; Thakur, J. The challenges of human resource management and opportunities for organization during (COVID-19) pandemic situation. *Int. J. Appl. Res.* **2021**, *7*, 9–12. [[CrossRef](#)]
90. Slavic, A.; Poór, J.; Berber, N.; Aleksić, M. Human Resource Management in the Time of COVID-19 Pandemic: Trends and Challenges. In Proceedings of the 26th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management, Subotica, Serbia, 21 May 2021. [[CrossRef](#)]
91. Carnevale, J.B.; Hatak, I. Employee adjustment and well-being in the era of COVID-19: Implications for human resource management. *J. Bus. Res.* **2020**, *116*, 183–187. [[CrossRef](#)]
92. Singer-Velush, N.; Sherman, K.; Anderson, E. Microsoft Analyzed Data on Its Newly Remote Workforce. *Harvard Business Review*, 15 July 2020.
93. Dhir, A.; Yossatarn, Y.; Kaur, P.; Chen, S. Online social media fatigue and psychological wellbeing—A study of compulsive use, fear of missing out, fatigue, anxiety and depression. *Int. J. Inf. Manag.* **2020**, *55*, 102185. [[CrossRef](#)]

94. Sivathanu, B.; Krishnasamy, G. COVID-19 pandemic: Impact on human resources and recommendations. *Int. J. Manag. Technol. Soc. Sci.* **2020**, *5*, 15–28. [CrossRef]
95. Cullen, W.; Gulati, G.; Kelly, B.D. Mental health in the COVID-19 pandemic. *QJM Int. J. Med.* **2020**, *113*, 311–312. [CrossRef]
96. Nguyen, H.; Nguyen, M. The roles of human resources in adapting organizational changes in COVID-19 pandemic. *J. Asian Bus. Econ. Stud.* **2021**, *28*, 84–96. [CrossRef]
97. Mishra, S.; Sahoo, C.K.; Mishra, S. Impact of COVID-19 on employee engagement and motivation: Moderating role of organization type and sector. *J. Public Aff.* **2021**, *22*, e2572. [CrossRef]
98. Kottaridi, C.; Antoniadis, C. Greek employers and employees: Attitudes toward the shift to remote work during the COVID-19 pandemic. *J. Eur. Soc. Policy* **2021**, *31*, 174–190. [CrossRef]
99. Mansoor, F.; Wei, L.; Bányai, T.; Nurunnabi, M.; Subhan, Q.A. An examination of sustainable HRM practices on job performance: An application of training as a moderator. *Sustainability* **2019**, *11*, 2263. [CrossRef]
100. Paauwe, J. HRM and performance: Achievements, methodological issues and prospects. *J. Manag. Stud.* **2009**, *46*, 129–142. [CrossRef]
101. Pancasila, I.; Haryono, S.; Sulisty, B.A. Effects of work motivation and leadership toward work satisfaction and employee performance: Evidence from Indonesia. *J. Asian Financ. Econ. Bus.* **2020**, *7*, 387–397. [CrossRef]
102. Savitz, A. *The Triple Bottom Line*; Jossey-Bass: San Francisco, CA, USA, 2006.
103. Hite, L.M.; McDonald, K.S. Careers after COVID-19: Challenges and changes. *Hum. Resour. Dev. Int.* **2020**, *23*, 427–437. [CrossRef]
104. Lund, S.; Madgavkar, A.; Manyika, J.; Smit, S.; Ellingrud, K.; Meaney, M.; Robinson, O. The Future of Work after COVID-19. 2021. Available online: <https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-after-Covid19> (accessed on 29 August 2023).
105. Devyania, R.D.; Jewanc, S.Y.; Bansal, U.; Denge, X. Strategic impact of artificial intelligence on the human resource management of the Chinese healthcare industry induced due to COVID-19. *IETI Trans. Econ. Manag.* **2020**, *1*, 19–33. [CrossRef]
106. Liu, Y.; Lee, J.M.; Lee, C. The challenges and opportunities of a global health crisis: The management and business implications of COVID-19 from an Asian perspective. *Asian Bus. Manag.* **2020**, *19*, 277–297. [CrossRef]
107. AM, E.N.; Affandi, A.; Udobong, A.; Sarwani, S. Implementation of human resource management in the adaptation period for new habits. *Int. J. Educ. Adm. Manag. Leadersh.* **2020**, *1*, 19–26. [CrossRef]
108. Ngoc Su, D.; Luc Tra, D.; ThiHuynh, H.M.; Nguyen, H.H.T.; O'Mahony, B. Enhancing resilience in the COVID-19 crisis: Lessons from human resource management practices in Vietnam. *Curr. Issues Tour.* **2021**, *24*, 3189–3205. [CrossRef]
109. Asatiani, A.; Hämäläinen, J.; Penttinen, E.; Rossi, M. Constructing continuity across the organisational culture boundary in a highly virtual work environment. *Inf. Syst. J.* **2021**, *31*, 62–93. [CrossRef]
110. Jeet, V.; Sayeeduzzafar, D. A study of HRM practices and its impact on employees' job satisfaction in private sector banks: A case study of HDFC bank. *Int. J. Adv. Res. Comput. Sci. Manag. Stud.* **2014**, *2*, 62–68.
111. Judge, T.A.; Thoresen, C.J.; Bono, J.E.; Patton, G.K. The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychol. Bull.* **2001**, *127*, 376–407. [CrossRef]
112. Wright, T.A.; Cropanzano, R.; Bonett, D.G. The moderating role of employee positive well-being on the relation between job satisfaction and job performance. *J. Occup. Health Psychol.* **2007**, *12*, 93–104. [CrossRef]
113. Pushpakumari, M.D. The Impact of Job Satisfaction on Job Performance: An Empirical Analysis. *City Forum* **2008**, *9*, 89–105.
114. Meyer, J.P.; Allen, N.J. *Commitment in the Workplace: Theory, Research, and Application*; SAGE: New York, NY, USA, 1997.
115. Bańka, A.; Bazińska, R.; Wołoska, A. Polska wersja Meyera i Allen Skali Przywiązania do Organizacji. *Czas Psychol.* **2002**, *8*, 65–74.
116. Meyer, J.P.; Becker, T.E.; Vandenberghe, C. Employee commitment and motivation: A conceptual analysis and integrative model. *J. Appl. Psychol.* **2004**, *89*, 991–1007. [CrossRef]
117. Hassan, S.; Mahmood, B. Relationship between HRM Practices and Organizational Commitment of Employees: An Empirical Study of Textile Sector in Pakistan. *Int. J. Acad. Res. Account. Financ. Manag. Sci.* **2016**, *6*, 23–28. [CrossRef]
118. Lewicka, D. *Human Capital Management and Employee Engagement*; Wydawnictwo C.H Beck: Warsaw, Poland, 2019; ISBN 978-83-8158-318-3.
119. Armstrong, M.; Taylor, S. *HR Management*; Wolters Kluwer: Alphen aan den Rijn, The Netherlands, 2016. Available online: <https://www.profinfo.pl/sklep/zarzadzanie-zasobami-ludzкими,25308.html#informacje> (accessed on 30 August 2023).
120. Hewett, R.; Shantz, A.; Mundy, J.; Alfes, K. Attribution theories in Human Resource Management research: A review and research agenda. *Hum. Resour. Manag. Rev.* **2017**, *29*, 87–126. [CrossRef]
121. Zeinabadi, H.; Salehi, K. Role of procedural justice, trust, job satisfaction, and organizational commitment in Organizational Citizenship Behavior (OCB) of teachers: Proposing a modified social exchange model. *Procedia Soc. Behav. Sci.* **2011**, *29*, 1472–1481. [CrossRef]
122. Chu, C. Evaluating the Relationship between Transformational Leadership and Employee Organizational Commitment in the Taiwanese Banking Industry. Ph.D. Thesis, Lynn University, Boca Raton, FL, USA, 2006.
123. Masihabadi, A.; Rajaei, A.; Shams Koloukhi, A.; Parsian, H. Effects of stress on auditors' organizational commitment, job satisfaction, and job performance. *Int. J. Organ. Leadersh.* **2015**, *4*, 303–314. [CrossRef]
124. Rose, R.C.; Kumar, N.; Pak, O.G. The Effect of Organizational Learning On Organizational Commitment, Job Satisfaction and Work Performance. *J. Appl. Bus. Res.* **2009**, *25*, 55–66. [CrossRef]

125. McNeese-Smith, D.K. The influence of manager behavior on nurses' job satisfaction, productivity, and commitment. *J. Nurs. Adm.* **1997**, *27*, 47–55. [[CrossRef](#)]
126. Suliman, A.; Iles, P. Is continuance commitment beneficial to organizations? Commitment-performance relationship: A new look. *J. Manag. Psychol.* **2000**, *15*, 407–422. [[CrossRef](#)]
127. Arnett, D.B.; Laverie, D.A.; McLane, C. Using job satisfaction and pride as internal-marketing tools. *Cornell Hotel. Restaur. Adm. Q.* **2002**, *43*, 87–96. [[CrossRef](#)]
128. Colquitt, J.; LePine, J.A.; Wesson, M.J. *Organizational Behavior: Essentials for Improving Performance and Commitment*; McGraw-Hill/Irwi: New York, NY, USA, 2010.
129. McDermott, K.; LASCHINGER, H.K.S.; Shamian, J. Work Empowerment and Organizational Commitment. *Nurs. Manag.* **1996**, *27*, 44–47. [[CrossRef](#)]
130. Dissanayake, K. Encountering COVID-19: Human resource management (HRM) practices in a pandemic crisis. *CJMR J.* **2020**, *5*, 1–23. [[CrossRef](#)]
131. Said, R.M.; El-Shafei, D.A. Occupational stress, job satisfaction, and intent to leave: Nurses working on the front lines during the COVID-19 pandemic in Zagazig City, Egypt. *Environ. Sci. Pollut. Res.* **2021**, *28*, 8791–8801. [[CrossRef](#)] [[PubMed](#)]
132. Satankar, B. COVID-19 and its impact on human resource management practices. *Int. J. Creat. Res. Thoughts* **2020**, *8*, 3713–3718.
133. Hamouche, S. Human resource management and the COVID-19 crisis: Implications, challenges, opportunities, and future organizational directions. *J. Manag. Organ.* **2021**, *29*, 799–814. [[CrossRef](#)]
134. Oseghale, R.; Ochie, C.; Dang, M.; Nyuur, R.; Debrah, Y. Human resource management reconfiguration post-COVID-19 crisis. In *Organizational Management in Post Pandemic Crisis, Management and Industrial Engineering*; Machado, C., Davim, J.P., Eds.; Springer: Cham, Switzerland, 2022; pp. 139–159.
135. Hemalatha, D.; Jambulingam, S. Role of corona pandemic on human resource management in private hospitals—A comparative study pre and post COVID-19 with special reference to Madurai district (TN). *J. Emerg. Technol. Innov. Res.* **2022**, *9*, g402–g411.
136. Mathew, B.; Walarine, M.T. Human Resource Management: Pre-pandemic, Pandemic and beyond. *Recoletos Multidiscip. Res. J.* **2022**, *2021*, 103–114. [[CrossRef](#)]
137. Anjum, N.; Rahman, M.; Rahaman, S. Challenges for HR Professionals in the Post-COVID-19 Era. *J. Bus. Strategy Financ. Manag.* **2022**, *4*, 5–11. [[CrossRef](#)]
138. Awu, E. The Impact of Covid-19 Pandemic on Human Resource Management and the Role Changes of HR Manager in an Organization. *Acad. Res. Int.* **2021**, *5*, 8–14.
139. Mathew, S. Changing Role of HR Managers in COVID-19 Scenario. In Proceedings of the International E-Conference on Adapting to the New Business Normal—The Way Ahead, Mysuru, India, 3–4 December 2020; ISBN 978-93-83302-47-5.
140. Rožman, M.; Peša, A.; Rajko, M.; Štrukelj, T. Building Organisational Sustainability during the COVID-19 Pandemic with an Inspiring Work Environment. *Sustainability* **2021**, *13*, 11747. [[CrossRef](#)]

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